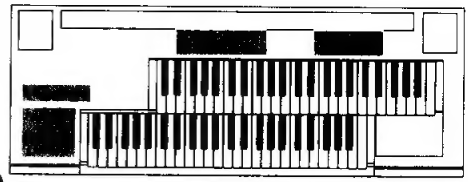


11 Rhythm Pattern Programming and Rhythm Sequence Programming(EL-60)



The EL-60 also includes powerful Rhythm Program functions: the Rhythm Pattern Programmer and the Rhythm Sequence Programmer. The Rhythm Pattern Programmer allows you to record your own original rhythm patterns using the high-quality percussion sounds of the Electone. The Rhythm Sequence Programmer lets you connect your original rhythm patterns together with the Preset rhythm patterns to create complete rhythm tracks, which you can automatically play back during your performance.

Outline of Rhythm Programming Operation

The following is a brief outline of the steps necessary in programming your own rhythm patterns and rhythm sequences. Once you work through the detailed instructions in the following sections and learn how to operate the Rhythm Program functions, you can use this outline as a guide or reminder.

- 1) Press the **RHYTHM PATTERN** button to call up the Rhythm Pattern Programmer and select the Rhythm Program pages.
- 2) Set the Beat and Quantize values.
- 3) Select the Edit page to record percussion sounds and program the pattern.
- 4) (Optional) Select the Accompaniment page to determine which accompaniment pattern will be used with your newly created rhythm.
- 5) Save your new rhythm pattern to memory.
- 6) Press the **RHYTHM SEQUENCE** button to call up the Rhythm Sequence Programmer for connecting rhythm patterns together in sequence to create songs.
- 7) Save your new rhythm sequences to the Sequence buttons.
- 8) (Optional) Finally, save all the User rhythm data you've created in the above steps to disk.

Panel Controls — Rhythm Pattern Programmer and Rhythm Sequence Programmer

The functions of the Rhythm Pattern Programmer and Rhythm Sequence Programmer are controlled from the Data Control buttons and a special set of buttons to the right of the DISPLAY SELECT section. The PATTERN and SEQUENCE buttons are used to select those respective programming functions. The other buttons differ in operation depending on the programming mode. The labels above the buttons indicate the functions of the Rhythm Pattern Programmer, while those below indicate the functions of the Rhythm Sequence Programmer.



Detailed explanations of these buttons are given below in the instructions that pertain to them.

Rhythm Pattern Programming

The Rhythm Pattern Programmer works with the Keyboard Percussion feature to let you use any of 75 different percussion sounds in creating your own rhythm patterns. Up to 16 separate rhythm "tracks" are provided in a single pattern for each instrument part, and up to 40 patterns — eight User numbers, each with five variations — can be memorized.

Programming Rhythm Patterns

To call up the Rhythm Pattern Programmer function and select the Rhythm Program pages:

1. Press and hold down the PATTERN button in the RHYTHM PROGRAM section. The LED of the button lights and the display prompts you to select a rhythm pattern.



<PATTERN>
Select a Rhythm !!

Note: Pressing the PATTERN button here also automatically stops the rhythm patterns and rhythm sequences.

Note: Use of the playback and recording functions on the Music Disk Recorder automatically cancels the Rhythm Programming/Rhythm Sequencing operations.

2. While holding down the **PATTERN** button, select a preset rhythm pattern to be copied to the Rhythm Pattern Programmer. Releasing the **PATTERN** button without selecting a rhythm loads a blank pattern to the Programmer.

Copying a preset rhythm lets you make changes to an existing rhythm pattern, saving you time if you want to program a rhythm that is similar to an existing preset pattern. Two measures of the selected rhythm pattern will be copied to the Rhythm Pattern Programmer.

Loading a blank rhythm pattern allows you to create your own rhythm pattern from scratch.

Note: When preset rhythm patterns are copied to the Rhythm Programmer, the copied patterns may differ in volume from the original patterns.

COPYING A PATTERN FROM THE RHYTHM MENUS:

You can also copy a specific rhythm pattern from among the choices in a Rhythm Menu. To do this, press the desired panel Rhythm button, then select the desired pattern with the Data Control buttons — **BEFORE** calling up the Rhythm Pattern Programmer and performing steps #1 and #2 above. The specified rhythm will be copied once you execute steps #1 and #2.

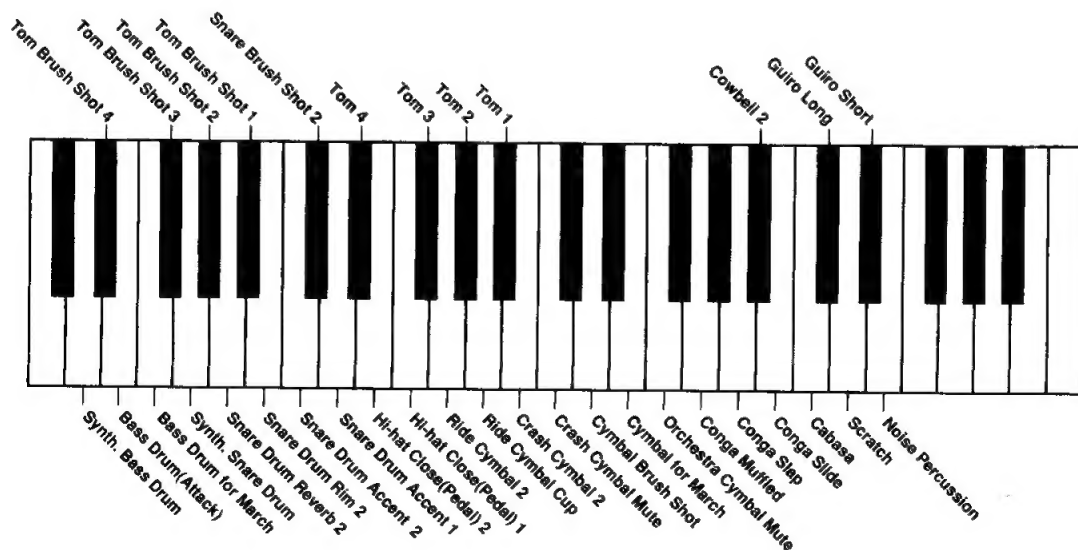
Rhythm Programming Percussion Sounds

— Upper and Lower Keyboards

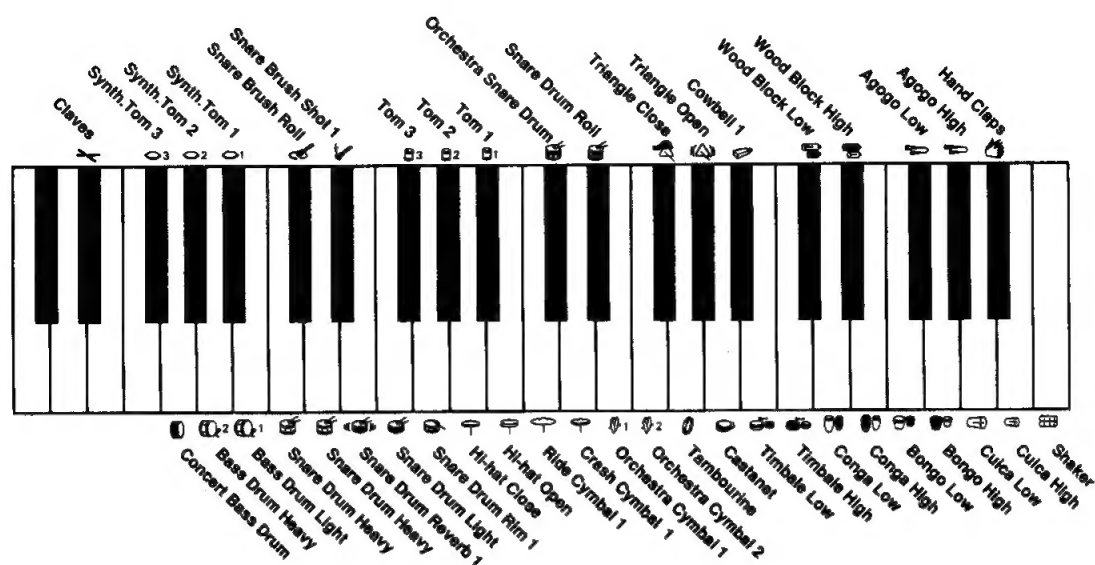
The Rhythm Programmer has a total of 75 different percussion sounds that are assigned to the keys of the Upper and Lower keyboards, as shown in the following chart.

Note: Percussion sounds on the Lower keyboard are the same as in Keyboard Percussion. The sounds of the Upper keyboard can be used only in Rhythm Pattern Programming.

Upper Keyboard



Lower Keyboard



Step Write and Real Time Write Operation

There are two different methods you can use to program rhythm patterns: Step Write and Real Time Write. Step Write allows you to enter percussion sounds as individual note values. As a method, it is very similar to writing down the notes on a sheet of music paper; each note is entered one at a time, and though you can hear each individual note entered, you cannot actually hear the pattern playing as you create it. Real Time Write on the other hand, is similar to using a multitrack tape recorder; you can hear previously recorded parts of the pattern as you record new parts on top.

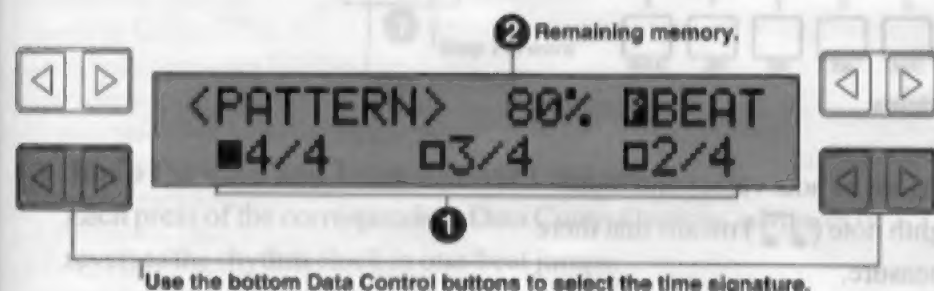
Each method has its own advantages and uses. Step Write is good for precision and for entering percussion sounds whose note placement and rhythmic value has been determined, such as a bass drum that plays every beat in a measure. Real Time Write is best for capturing the "feel" of a rhythm, because it allows you to actually play the pattern as you are creating it. Which method you use depends partly on the type of rhythm you intend to create and partly on your own personal preference. You can even switch between the two methods in editing to create a single rhythm pattern by the use of both methods. A typical use for this would be to program the basic beats of a rhythm with Step Write, then using Real Time Write to add percussion accents and embellishments.

Selecting Step Write or Real Time Write Operation

Step Write and Real Time Write can be selected from the Edit page. Which mode of operation is selected depends on the play status of the rhythm pattern. If the rhythm is stopped, Step Write is automatically selected. If the rhythm is playing, Real Time Write is selected. Simply press the START button in the Rhythm section on the panel to start or stop the rhythm pattern and switch between the two modes.

Setting the Beat and Quantize Values

Before recording a pattern, you should set the Beat and Quantize values. These determine the basic timing settings of the pattern. Beat is controlled from the Beat Set page, and Quantize is set from the Quantize buttons on the panel.



1 Beat

This determines the time signature used for the rhythm pattern, and is selected in the Beat Set page. (The Beat Set page is automatically displayed when the Rhythm Pattern Programmer has been called up and a rhythm pattern has been selected.) Available time signatures are 4/4, 3/4 and 2/4.

2 Remaining Memory

This indicates the amount of memory available for storing rhythm patterns. Remaining memory is expressed as a percentage: 100% indicates the maximum amount of memory available, and 0% indicates that there is no more memory available. (Remaining memory is also displayed in the Edit page and the Save page.)

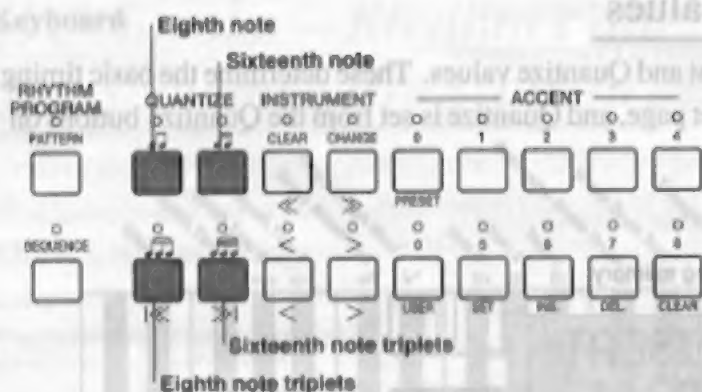
Note: Beat can only be changed in Real Time Write when the rhythm pattern is stopped.

Quantize

Quantize determines the resolution for entering percussion sounds to a pattern. Since Step Write operations involve advancing in "steps" along regularly spaced points in a measure, Quantize lets you set how many points there will be in the measure. In Step Write, since you can only enter notes to those points, the more points there are in a measure, the more leeway you have in entering notes.

Quantize functions in generally the same way in Real Time Write operation in that it determines the resolution of the pattern. Used with Real Time Write, however, it allows you to automatically "correct" the timing of the notes as you play them, according to the specified Quantize resolution.

Use the Quantize buttons on the panel (shown below) to set the Quantize value.



Quantize values are shown above the buttons as note values and represent fractions of a measure; thus, the eighth note (♩) means that there will be eight points or divisions in the measure.

Entering Percussion Sounds to a Rhythm Pattern

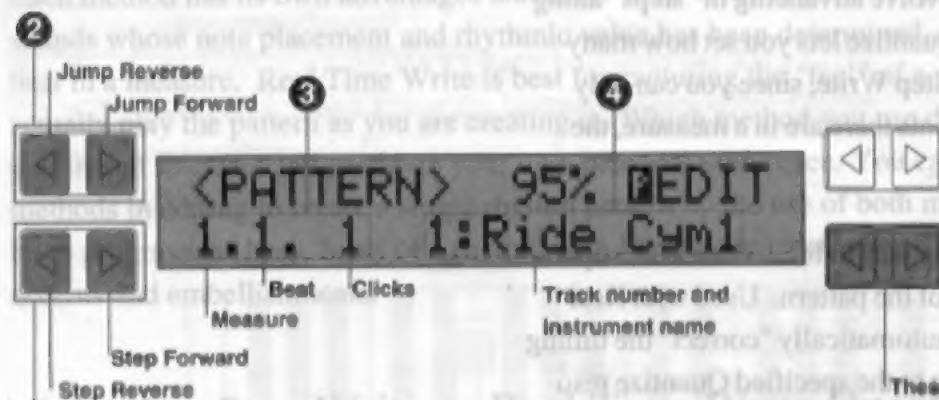
Percussion sounds can be entered by either Step Write or Real Time Write from the Edit page. Select the Edit page with the Page Select buttons. The Step Write version of the Edit page is automatically called up if the rhythm pattern is stopped, and Real Time Write is called up if the pattern is running.

Editing with Step Write

To enter sounds with Step Write:

1. From the Edit page of Step Write, use the step forward and step reverse controls (shown below) to advance or reverse the rhythm clock to the point at which you wish to enter the percussion sound.

Edit Page — Step Write

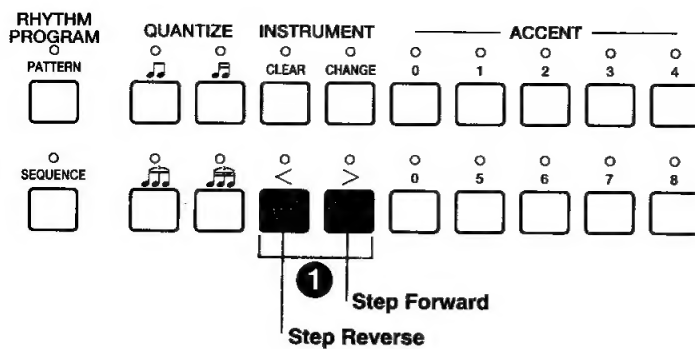


Note: When using the Rhythm Pattern Programmer, the buttons on the panel function according to the indications printed above each button in white.

1 Step Forward and Step Reverse Controls

Each press of the corresponding Data Control buttons advances or reverses the rhythm clock by one step. The size of a single step is determined by the Quantize value on the panel.

Step Forward and Step Reverse are also controllable from the panel buttons, as shown below.



2 Jump Forward and Jump Reverse Controls

Each press of the corresponding Data Control buttons advances or reverses the rhythm clock in one-beat jumps.

3 Rhythm Clock

Displays the current position in the pattern, according to the measure, beat, and number of clicks. A click is the smallest division of a pattern, and one beat is made up of 24 clicks.

4 Track

Displays the number of the rhythm track and the instrument recorded to it. Use the bottom right Data Control buttons to step through the tracks. (See step #2 below; also see Change function, page 94.)

Note: You can return to the Beat Set page in the middle of editing and change the time signature.

2. Select the percussion sound you wish to enter.

There are two ways to select percussion sounds in the Step Write mode:

Press the key on the Upper or Lower keyboard that corresponds to the sound.

The instrument name automatically appears at the bottom right of the LCD when the key is pressed. The selected instrument is automatically assigned to an available empty rhythm track.

or

Use the bottom right Data Control buttons corresponding to the instrument name to step through the available sixteen rhythm tracks.

The name of the instrument currently assigned to the selected track is displayed at the bottom right of the LCD. (Since this method allows you to select only from among the assigned instruments, use the Change function described on page 94 to change instrument assignments.)

3. Use the Accent buttons on the panel to enter the sound to the selected point.



These buttons are used to actually enter or record the instrument and determine its volume or Accent level. Press the button that corresponds to the Accent level you wish to set; the instrument is then automatically inserted at that Accent level to the selected position in the pattern (shown in the rhythm clock). An Accent value of 0 is the minimum, and 8 is the maximum.

Note: You can record and up to sixteen different instrument sounds in a single rhythm pattern, with each instrument occupying one of the sixteen available tracks. The Rhythm Pattern Programmer has polyphonic capacity for playing up to eight sounds simultaneously. Instruments can only be entered if there are empty tracks remaining. If all sixteen tracks have been used, no subsequently selected instruments can be heard or recorded.

Clear and Change

The Rhythm Pattern Programmer is made up of sixteen individual tracks, each capable of recording a different instrument. The Clear function is used to delete the entire contents of an instrument track, while Change is used to assign a different instrument to an already occupied track.

Clear

The Clear function is used to erase an instrument from the rhythm pattern. All instances of the selected instrument, irrespective of which tracks they occupy, will be erased from the pattern.

There are two ways to use Clear:

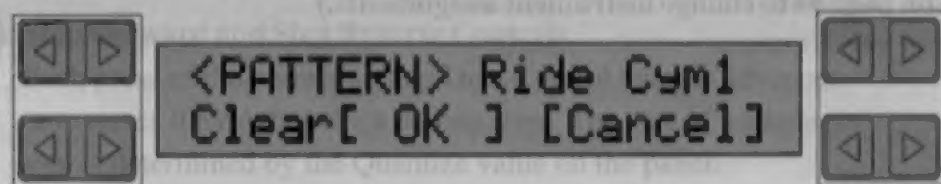
One way is to press the key on the keyboard corresponding to the instrument you wish to erase, while simultaneously holding down the Clear button. (A short "beep" sound indicates that the instrument has been erased.)

You can erase all of the sounds on all recorded tracks of the pattern by holding down the Clear button and simultaneously pressing the lowest key (C1) on the Lower keyboard. Be careful not to do this inadvertently since all sounds will be instantly and permanently erased.

or

The other way is to press, then release the Clear button on the panel (in Step Write operation only).

The following display appears, prompting confirmation of the operation:



Select OK with any of these buttons to clear all data. A "completed" message momentarily appears on the LCD.

Select Cancel with any of these buttons to abort the operation and return to the original Edit display.

Change

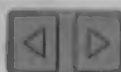
The Change function allows you to reassign the instrument of a selected track.

To change an instrument assignment:

1. Select the track's instrument that you want to change from the Edit page by using the corresponding Data Control buttons.



<PATTERN> 95% EDIT
1.1. 1 1:Ride Cym1



Track number and instrument name

Use these buttons to select the instrument.

2. Simultaneously hold down the Change button on the panel and press the key on the Upper or Lower keyboard that corresponds to the instrument.

Editing with Real Time Write

To enter sounds with Real Time Write:

1. From the Beat Set/Edit page, start the rhythm pattern by pressing the START button.

2. While the rhythm pattern is running, play the percussion sounds from the Upper and/or Lower keyboards.

A metronome is provided for rhythmic reference. Listen to the metronome click as you play the sounds, using it as a guide to keep in time and tempo. The pattern will automatically repeat (or "loop") every two measures.

The metronome can be turned on and off from the Real Time Write Edit page (shown below).



<PATTERN> 100% Edit
Real Time METRO.



Metronome (METRO.)

Turns the metronome click on or off. When set to ON, the metronome sounds on each beat of the measure (for example, three times per measure in 3/4 time) to serve as a rhythmic guide when programming patterns. The metronome can be turned on or off while a rhythm pattern is playing. The metronome is automatically set to ON when a blank pattern has been selected, and is set to OFF when an existing pattern is copied.

Each instrument sound is recorded and automatically assigned to a separate track as you play it. All events of a single sound are assigned to the same track; for example, if you alternately play a hi-hat sound with a snare drum, all notes of the hi-hat will be recorded to one track and all notes of the snare drum to another track.

Note: All of the instrument and track recording limitations described in Step Write apply to Real Time Write as well. (See note in Editing with Step Write, step #3, page 93.)

3. When you've finished entering instruments to the pattern, stop it by pressing the **START** button again, or by selecting the **Accompaniment** or **Save** pages.

USING THE CLEAR FUNCTION IN REAL TIME WRITE:

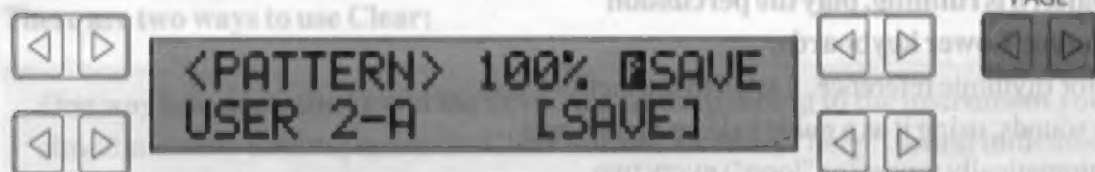
As in Step Write, the Clear function is used to erase an instrument from the rhythm pattern. However, the method of the operation is slightly different. Hold down the Clear button, and simultaneously press the key on the keyboard corresponding to the instrument you wish to erase. All instances of the selected instrument, irrespective of which tracks they occupy, will be erased from the pattern.

You can erase all of the sounds on all recorded tracks of the pattern by selecting Clear and pressing the lowest key (C1) on the Lower keyboard. Be careful not to do this inadvertently since all sounds will be instantly and permanently erased.

Saving Rhythm Patterns

To save a newly created rhythm pattern to a User pattern number:

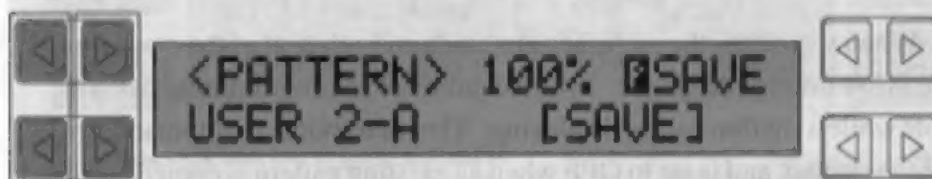
1. Select the Save page with the Page Select buttons.



The current rhythm pattern, if playing, will automatically be stopped when this page is selected.

2. Using the appropriate Data Control buttons, select both the User number and variation type to which you wish to save the newly created rhythm pattern.

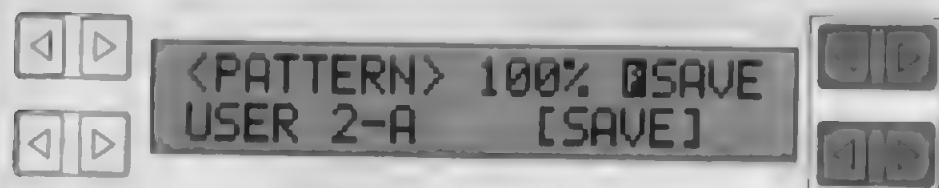
Keep in mind that you cannot save a rhythm pattern by selecting only a User number; you must also select a variation type — A, B, C, D, or FILL (Fill In). Including the Fill In patterns, up to 40 different rhythm patterns (8 User numbers x 5 variations) can be saved.



These buttons select the variation type.

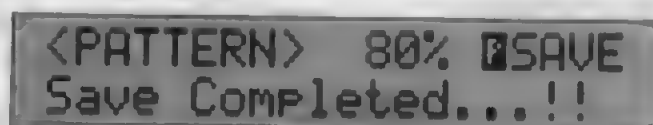
These buttons select the User number.

3. Use any of the Data Control buttons to the right of the LCD (corresponding to "SAVE") to actually execute the save operation.



Use any of these buttons to execute the save.

When the pattern has been saved, the following display appears momentarily:



When the pattern cannot be saved because of lack of available memory space, the following display appears:



Press any of the right Data Control buttons (corresponding to "Confirm") to return to the original Save display.

You should periodically save your rhythm pattern as you are making it and check the amount of remaining memory. If the rhythm pattern currently being edited cannot be saved because of a lack of memory space, erase some of the less necessary percussion sounds with the Clear function, and try saving the pattern again.

Note: The Power On Reset function (see page 60) can be used to delete all User rhythm patterns from memory.

Selecting Accompaniment Patterns

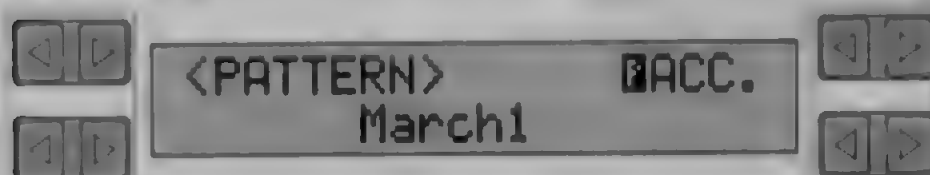
This function of the Rhythm Pattern Programmer allows you to use one of the Electone's Accompaniment patterns with your original rhythm pattern. You can select the Accompaniment pattern that best matches the rhythm pattern that you have created.

To select an appropriate Accompaniment pattern for your newly created rhythm pattern:

1. Select the Accompaniment (ACC.) page with the Page Select buttons.



2. Select the desired rhythm group by pressing a Rhythm button on the panel; select the rhythm type by using the Data Control buttons on both sides of the LCD.



Selects rhythm pattern (right buttons select next pattern, left buttons select previous one).

Note: If a rhythm pattern is started in the Accompaniment page, the Accompaniment will also be heard. However, both the rhythm pattern and the Accompaniment will automatically be stopped when you leave the page.

Note: You cannot save the Accompaniment type or the volume setting here.

3. Try to audition the Accompaniment type.

You can also audition the Accompaniment type and set its volume from the Rhythm Condition page. Call up this display by pressing the corresponding rhythm button once again.



Selects the Accompaniment type.

Sets volume to minimum value.

Sets volume to maximum value.

Increases volume.

Decreases volume.

Leaving the Rhythm Pattern Programming Functions

You can exit the Rhythm Pattern Programmer from any of its display pages. To do this:

1. Press the PATTERN button in the RHYTHM PROGRAM section once again.

If a rhythm pattern is playing, it will automatically be stopped. The following display will appear, prompting confirmation of the operation.



Note: If you leave the Rhythm Pattern Programmer without having edited a pattern, this display will not appear.

2. Select "OK" to leave the Rhythm Pattern Programmer, or "Cancel" to abort the operation and return to the previous display.

Playing User Rhythm Patterns

The User rhythm patterns you have created in the Rhythm Pattern Programmer can be selected and played from the panel Rhythm controls.

To play User rhythm patterns:

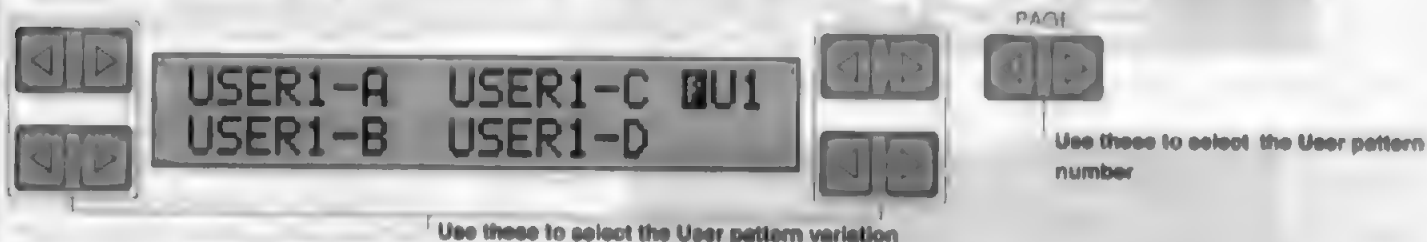
1. Press one of the dotted buttons in the Rhythm section.



2. Select the USER page with the Page Select buttons.



3. Select the desired User rhythm number from the LCD display by using the Page Select buttons, then select the desired pattern variation with the appropriate Data Control button.



PLAYING USER FILL IN PATTERNS:

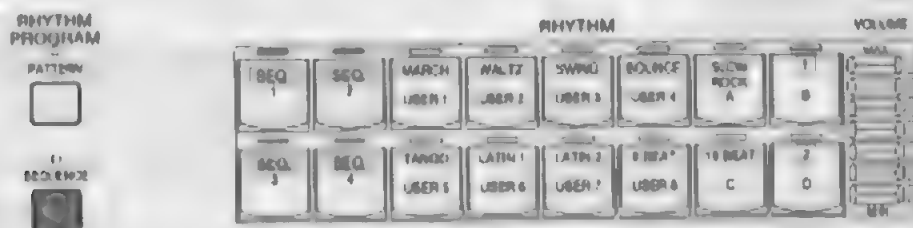
You can play User Fill In patterns by selecting the desired User number and pressing the FILL IN button in the Rhythm section on the panel.

Programming Rhythm Sequences

With the Rhythm Sequence Programmer, you can connect any of the Electone's existing rhythm patterns and the rhythm patterns of your own creation together to make complete rhythm compositions. Four rhythm compositions can be saved to the Sequence buttons on the panel for future recall.

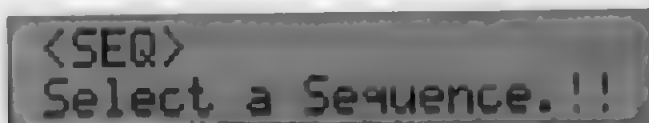
To call up the Rhythm Sequence Programmer function:

1. Press the **SEQUENCE** button in the **RHYTHM PROGRAM** section.



The LED of the **SEQUENCE** button flashes continuously throughout the operation.

The LEDs of the numbered Sequence buttons in the Rhythm section on the panel will flash and the following display will prompt you to select a sequence number.



2. Press one of the numbered Sequence buttons to call up the sequence edit display.



Note: When you select one of the sequences in this step, any editing done to that sequence is instantly and automatically saved. This means that if you select a sequence that is already programmed, any editing you do will permanently change the sequence and the original sequence cannot be recovered.

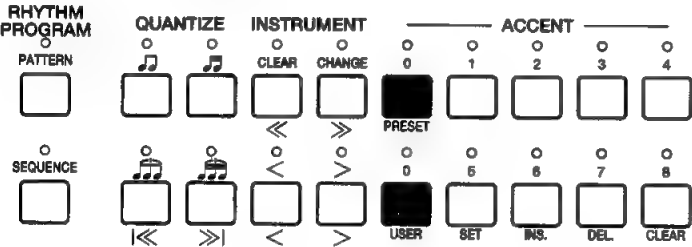
In this display, different rhythm patterns (both Preset rhythm patterns and User rhythm patterns that you created with the Rhythm Pattern Programmer) can be entered in sequence along the pattern row in the bottom of the display. Entered patterns are indicated by a number/letter code in the LCD.

The three-character code inside each box indicates the type and number of the rhythm pattern. The preset rhythm patterns of the Electone are indicated by a two-digit number (i.e., [05] or [16]). User patterns are indicated by the "U" prefix as well as a letter suffix representing the type — A, B, C, D, and F (Fill In). Examples of these include [U3C] and [U8F]. The preset patterns also may have a letter suffix: "I" indicates Intro, "F" indicates Fill In, and "E" indicates Ending (i.e., [01I], [20F], and [16E])

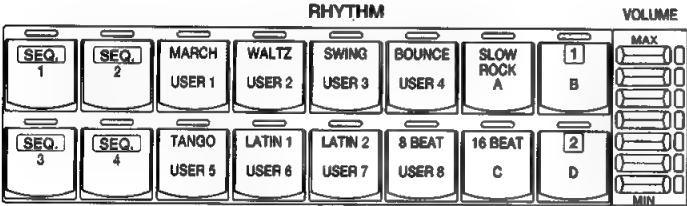
Note: Any rhythm pattern currently playing will automatically be stopped when you call up the Rhythm Sequence Programmer function. Also, use of the Music Disk Recorder automatically cancels Rhythm Sequence operations.

To program a rhythm sequence:

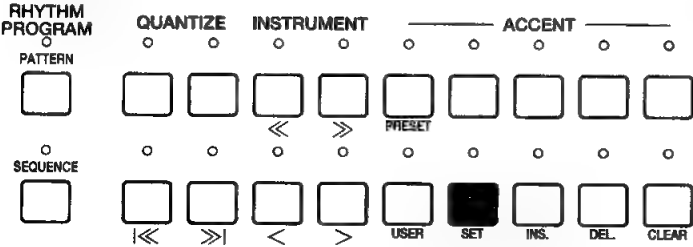
1. Select the type of rhythm pattern you wish to enter, Preset or User, from the corresponding buttons on the panel.



2. Select the desired rhythm pattern by pressing the appropriate button in the Rhythm Select section, then press the SET button on the panel to enter the pattern. (Refer to the Rhythm Pattern Number Table below for a list of the rhythm patterns and their number assignments.)



1) Press one of the rhythm buttons...



2) ...then select SET.

Note: When using the Rhythm Sequence Programmer, the buttons on the panel function according to the indications printed below each button in green.

When PRESET is selected in step #1 above, the Rhythm Select buttons are used to select the Preset rhythm names printed at the top of each button. When USER is selected, however, these buttons function according to the User numbers and letters printed at the bottom. Select the User pattern by pressing one of the numbered buttons (1—8), then a lettered button (A, B, C, or D) or FILL (for User Fill In).

Note: A maximum of 120 patterns can be entered to a single sequence.

Rhythm Pattern Number Table

| | | | | | | | |
|----|--------------|----|-------------|----|-------------|----|----------------|
| 01 | March 1 | 18 | Bolero | 35 | Slow Rock 3 | 52 | 8 Beat 3 |
| 02 | March 2 | 19 | Swing 1 | 36 | Tango 1 | 53 | 8 Beat 4 |
| 03 | March 3 | 20 | Swing 2 | 37 | Tango 2 | 54 | 8 Beat 5 |
| 04 | Polka 1 | 21 | Swing 3 | 38 | Tango 3 | 55 | Dance Pop 1 |
| 05 | Polka 2 | 22 | Swing 4 | 39 | Cha-cha | 56 | Dance Pop 2 |
| 06 | Country 1 | 23 | Swing 5 | 40 | Rhumba | 57 | Dance Pop 3 |
| 07 | Country 2 | 24 | Swing 6 | 41 | Beguine | 58 | Dance Pop 4 |
| 08 | Broadway | 25 | Jazz Ballad | 42 | Mambo | 59 | 16 Beat 1 |
| 09 | Baroque | 26 | Dixieland 1 | 43 | Salsa | 60 | 16 Beat 2 |
| 10 | Waltz 1 | 27 | Dixieland 2 | 44 | Samba 1 | 61 | 16 Beat 3 |
| 11 | Waltz 2 | 28 | Bounce 1 | 45 | Samba 2 | 62 | 16 Beat 4 |
| 12 | Waltz 3 | 29 | Bounce 2 | 46 | Samba 3 | 63 | 16 Beat 5 |
| 13 | Waltz 4 | 30 | Bounce 3 | 47 | Bossanova 1 | 64 | 16 Beat Funk 1 |
| 14 | Waltz 5 | 31 | Reggae 1 | 48 | Bossanova 2 | 65 | 16 Beat Funk 2 |
| 15 | Jazz Waltz 1 | 32 | Reggae 2 | 49 | Bossanova 3 | 66 | 16 Beat Funk 3 |
| 16 | Jazz Waltz 2 | 33 | Slow Rock 1 | 50 | 8 Beat 1 | | |
| 17 | Jazz Waltz 3 | 34 | Slow Rock 2 | 51 | 8 Beat 2 | | |

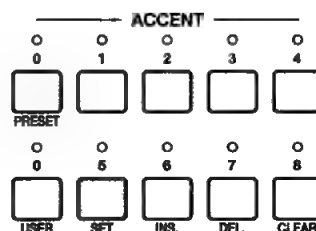
Fill-in/ Intro./Ending

| | |
|-----|-----------------|
| 01F | March 1 Fill-in |
| 01I | March 1 Intro. |
| 01E | March 1 Ending |

User

| | |
|-----|-----------------|
| U1A | User 1- A |
| U1B | User 1- B |
| U1C | User 1- C |
| U1D | User 1- D |
| U1F | User 1- Fill-in |

3. If you wish to enter a Fill In, Intro, or Ending pattern, hold down the appropriate rhythm control button on the panel (INTRO. ENDING or FILL IN) and simultaneously press the SET button.



1) While holding down INTRO. ENDING or FILL IN...

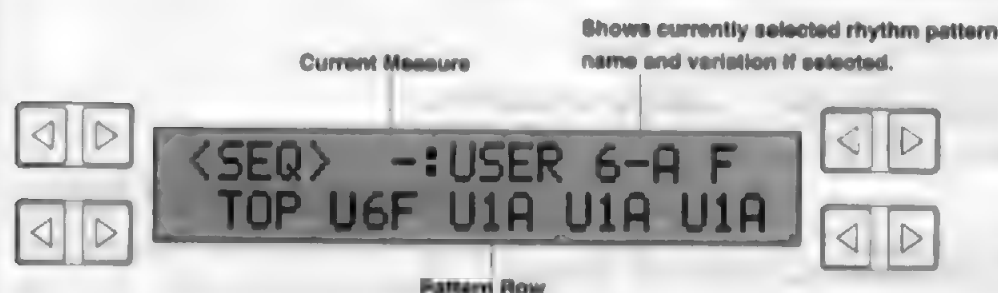
2) ...press SET.

ABOUT ENTERING INTRO AND ENDING PATTERNS:

Pressing the INTRO. ENDING button when at the first position in the pattern row automatically enters an Intro pattern there. Pressing the INTRO. ENDING button at any other position in the row enters an Ending pattern.

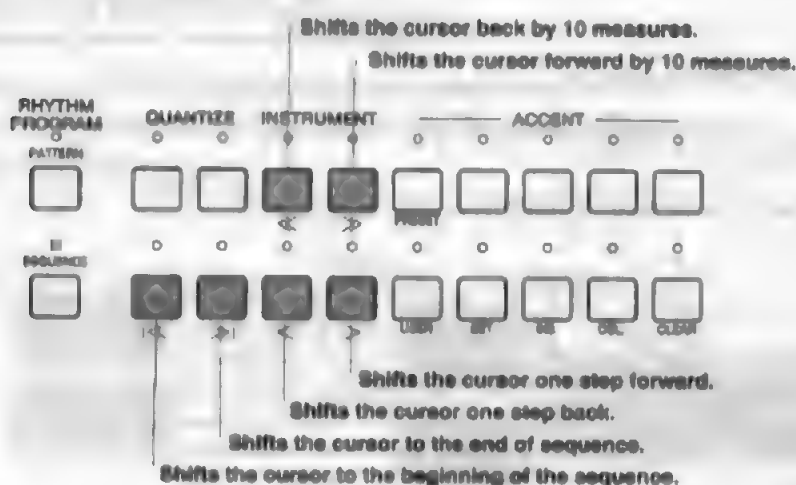
Note: Any data that follows an Ending pattern cannot be set.

4. Use the cursor controls (on the panel or the corresponding Data Control buttons) to move the cursor along the pattern row in the display and select the position at which patterns will be entered.



Note: An Intro or Fill In pattern entered to the first position is not registered as a measure, and the current measure display shows a dash (-), even though a pattern has been entered.

Cursor Controls on the Panel



Cursor Control with the Data Control Buttons



- 1 Shifts the cursor to the beginning of the sequence.
- 2 Shifts the cursor to the end of the sequence.
- 3 Shifts the cursor one step back.
- 4 Shifts the cursor one step forward.

5. Use the data entry controls on the panel (SET, INS., DEL., CLEAR) to enter or erase pattern numbers in the pattern row.



Data Entry Controls

1 Preset/User

Determines the type of rhythm pattern, Preset or User. (See step #1 above.)

2 Set

For initially entering a pattern number to an empty position in the pattern row, or for replacing a pattern at the cursor position. (See steps #2 and #3 above.)

3 Insert (INS.)

For inserting a pattern number at the current cursor position. The new pattern is entered to the cursor position and all other patterns to the right of the cursor are moved to accommodate the new number. The operation is the same as for Set (see steps #2 and #3 above).

4 Delete (DEL.)

For deleting a pattern number at the current cursor position.

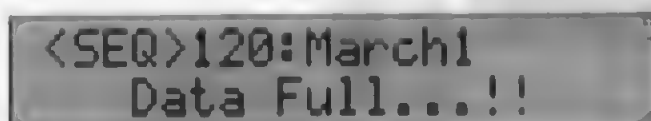
5 Clear

For erasing all patterns entered to the selected sequence. After selecting Clear, the following display appears:



Select "OK" to clear the currently selected rhythm sequence, or "Cancel" to abort the operation and return to the previous display.

When patterns can no longer be entered to the sequence because of lack of available memory space, the following display momentarily appears:



If this happens, use the Delete button to erase selected patterns, or use the Clear button to erase all patterns in the sequence.

PLAYING THE SEQUENCE DURING EDITING:

You can play the rhythm sequence at any time while you are editing or programming it by moving the cursor to the point at which you wish to begin playback and pressing the Rhythm START button.

ABOUT USING REGISTRATIONS WITH THE RHYTHM SEQUENCE PROGRAMMER:

The rhythm patterns assigned to the sequence can be changed during editing by selecting different registrations. This allows you to create a registration that contains the specific rhythm patterns that you will use in a given sequence, and call up that registration when editing the sequence. The type of Accompaniment used with the rhythm patterns also depends on the selected registration.

Leaving the Rhythm Sequence Function

To exit the Rhythm Sequence Programmer: Press the SEQUENCE button in the RHYTHM PROGRAM section once again. (The LED of the button will turn off.)

Playing Rhythm Sequences

To play any of the rhythm sequences you have created:

Press the appropriate Sequence button on the panel, then press the rhythm START button.



When one of the four rhythm sequences is playing, each programmed rhythm pattern that plays is indicated by the lit LED on the Rhythm panel button.

When a Preset rhythm pattern is playing, the current pattern button's LED is lit:



When a User rhythm pattern is playing, the LEDs of the two pattern buttons (User number and type) are lit:



Playing All Sequences In Order

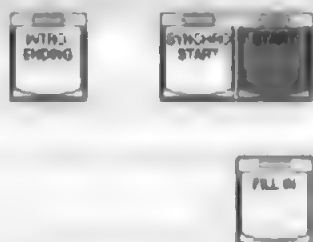
You can also have up to all four rhythm sequences automatically play in order, one after the other.

To do this:

1. Press the desired Sequence buttons, making sure that their LEDs are all lit.



2. Press the START button.



The rhythm sequences start from the lowest number and play in order automatically to the highest number. (For example, if you press Sequence buttons 4, 2 and 1 in that order, the sequences will be played back in their numeric order: 1, 2, then 4.) This function effectively allows you to make a long rhythm sequence that exceeds the 120-pattern memory limit of a single sequence.

Saving Rhythm Pattern and Rhythm Sequence Data to Disk

Once you have created your own rhythm patterns and rhythm sequences, you'll want to save them to disk. Doing so allows you to free up memory in the Electone for creating additional rhythm patterns and sequences. Also, the User rhythm patterns and sequences you've saved to disk can be loaded back to the Electone any time.

Rhythm Pattern and Rhythm Sequence data is included in the bulk data that is saved when you record registrations to disk. Refer to the section *Recording Registrations*, page 75, for instructions.

Recalling Rhythm Pattern and Rhythm Sequence Data from Disk

The Rhythm Pattern and Rhythm Sequence data saved to disk as part of bulk data, can instantly be loaded back to the Electone. Refer to the section *Recalling Recorded Registrations*, page 76, for instructions.

Note: When loading your original Rhythm Program data back to the Electone, be sure to stop the rhythm pattern if it is playing. Loading cannot be executed when a rhythm pattern is running.

Troubleshooting

Please note that the appearance of any of following phenomena does not indicate a mechanical failure of the Electone.

| Problem | Possible Cause and Solution |
|--|---|
| GENERAL OPERATION | |
| Some of the LEDs in the DISPLAY SELECT section do not light. | The LEDs of on/off buttons [UPPER/LOWER FLUTE VOICES, RHYTHM PROGRAM (EL-60) and TREMOLO (FAST)] are lit when those functions are turned on. The LEDs of other function's buttons momentarily flash when the functions are selected. (See page 18.) |
| No sound is produced from the Electone's speakers. | The plug of the cable from the speaker unit is disconnected. Refer to the separate "Assembly Instructions," and reconnect the plug securely. |
| A crackling noise is sometimes heard. | Noise may be produced when either an electrical appliance is turned on or off, or an electric power tool (such as a drill) is used in the proximity of the Electone. If this occurs, plug the Electone into an electrical outlet located as far as possible from the device that seems to be the source of the problem. |
| Interference from radio, TV, or other sources occurs. | This is caused by the proximity of a high-power broadcasting station or amateur ham radio setup. |
| The sound of the Electone causes surrounding objects to resonate. | Because the Electone is capable of producing powerful bass sounds, resonance may be caused in surrounding objects, such as cabinets or glass windows. To avoid this, relocate the objects or lower the Electone's volume. |
| The Electone panel does not function normally or the content of the memorized data has changed. | This happens very rarely. Occasionally, power surges and spikes due to electrical storms or other reasons may cause the Electone to malfunction and/or alter the contents of memorized data. If this happens, perform the Power On Reset operation to reset the Electone. (See page 60.) |
| VOICES/RHYTHMS | |
| When too many keys are pressed, not all of the notes sound. | Total polyphonic capacity (notes sounding for both Upper and Lower keyboards) is 11 notes on both models. Polyphonic capacity is 12 for the Upper and Lower Flute Voices and 6 each for the Upper and Lower Attack sound (both models). |
| When playing a Pedal voice from the Lower keyboard (using the To Lower function), pressing the Lower keyboard's Sustain button does not turn on Sustain. | Even though the Pedal voice is being played from the Lower keyboard, it is still a Pedal voice; turn the Sustain on with the Pedal Sustain button. (See page 32.) |
| The sound is too soft, despite the volume being set to the maximum. | Check all of the volume controls, making sure that they are set to suitable levels: the panel Volume controls for each voice section, the Master Volume dial, and the Expression Pedal. |
| Switching voices causes the volume to change, despite their having identical volume settings. | The volume of certain voices may seem lower than that of others. Adjust the balance of the sound with the Volume control within the appropriate Voice Condition display. |
| When keys on the Lower keyboard or Pedalboard are pressed, the sounds of percussion instruments are also heard. | The Keyboard Percussion function has been turned on. When not using the function, be sure to turn it off. (See page 50.) |
| Only one sound is heard when two notes of the Lead or Pedal voices are simultaneously played. | For practical performance reasons, the Electone has been designed so that one note of the Lead or Pedal voices can be played at a time. If several keys are pressed at once, only the highest note will be sounded (high-note priority). |
| The Pedal voices do not sound, even though the volume is properly set. | The Single Finger or Fingered Chord mode of Auto Bass Chord is on. Turn off the mode in the display. (See page 47.) |
| While an Intro./Ending pattern is automatically playing, the Lower keyboard does not produce any sound, even when the keys are played. | Since the Accompaniment chords play automatically one after another, the Lower keyboard is designed not to produce any sound during the play of an Intro./Ending pattern. |
| During use of the Rhythm Pattern Programmer (EL-60), no sound is produced even when you play a certain percussion sound. | If percussion sounds have been recorded to all 16 rhythm tracks, no subsequently selected instruments can be heard or recorded. If necessary, erase one of the tracks and play the sound. |
| EFFECTS | |
| The Tremolo effect cannot be heard, even when the TREMOLO (FAST) button in the DISPLAY SELECT section is on. | Tremolo must be selected first in the Voice Condition display (for panel voices), or in the Flute Voices' Edit page (for Flute Voices). (See page 33.) |

| Problem | Possible Cause and Solution |
|--|---|
| ACCOMPANIMENT AND OTHER FUNCTIONS | |
| Despite its volume being set to a suitable level, the Accompaniment cannot be heard. | The rhythm has not been started. Be sure to use Accompaniment together with the rhythm. |
| The pitch in the Single Finger mode does not change, even when pressing different keys of the keyboard. | Single Finger mode will only produce notes when played within a fixed octave interval on the Lower keyboard. If notes with the same letter name are pressed outside of that range, the chords that are sounded will share the same pitch. |
| The harmony notes of the Melody On Chord function cannot be heard. | The Upper keyboard has been set to sound only Lead voices. Increase the volume of the Upper voices. |
| REGISTRATION MEMORY | |
| Certain functions have not been memorized to Registration Memory. | Transposition and Pitch control data, among others, cannot be memorized (except as song data). (See page 54.) |
| MUSIC DISK RECORDER (EL-60) | |
| Recording or playback cannot be performed. | 1) Problems in recording or playback may be caused by improper operation of the M.D.R. Refer to the LED Display Messages chart on page 85. 2) The PLAY or RECORD section buttons for selecting parts may be turned off. Turn on the appropriate PLAY or RECORD buttons. |
| A total of 40 songs cannot be recorded. | If some song numbers contain a large amount of recorded data, the disk may not have enough available memory left to record the normal maximum of 40 songs. |
| Recording is stopped before the performance is finished, or the Song Copy function cannot be executed. | The amount of recorded data on the disk is close to the maximum limit. Either use another disk or delete the data of any unnecessary song number. (See page 82.) |
| In addition to a recorded performance on the Upper and/or Lower keyboards, a performance using a Lead voice cannot be recorded or played back. | 1) When recording, you forgot the following operation: press the RECORD button, then hold down the SHIFT button while you press the UPPER button (selecting Lead). 2) During playback, you forgot to set the UPPER PLAY button to on. |
| The Keyboard Percussion part has not been recorded, or plays back a different rhythm from the one recorded. | When recording, you forgot the following operation: press the RECORD button, then hold down the SHIFT button while you press the PEDAL button (selecting Keyboard Percussion). Other causes may be involved, so refer to the procedure for recording parts separately. (See page 73.) |
| The rhythm does not start at the beginning of a recording, or stops in the middle of the performance. | The M.D.R. is designed so that the rhythm cannot be started at the very beginning of a recording. If you wish to use the rhythm, start it after the available memory display appears on the M.D.R. display. |
| The notes of the recording are "stuck" and sound continuously. | During playback, you removed the disk by pressing the EJECT button. Whenever you wish to stop playback, always press the STOP button. |

SPECIAL MESSAGE SECTION

ELECTROMAGNETIC INTERFERENCE (RFI): Your Yamaha Electronic Product has been type tested and found to comply with all applicable regulations. However, if it is installed in the immediate proximity of other electronic devices, some form of interference may occur.

IMPORTANT NOTICE: This product has been tested and approved by independent safety testing laboratories in order that you may be sure that, when it is properly installed and used in its normal and customary manner, all foreseeable risks have been eliminated. DO NOT modify this unit or commission others to do so unless specifically authorized by Yamaha.

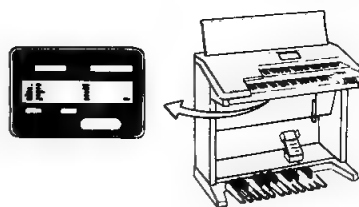
Product performance and/or safety standards may be diminished. Claims filed under the expressed warranty may be denied if the unit is / has been modified. Implied warranties may also be affected.

SPECIFICATIONS SUBJECT TO CHANGE: The information contained in this manual is believed to be correct at the time of printing. Yamaha reserves the right to change or modify specifications at any time without notice or obligation to update existing units.

NOTICE: Service charges incurred due to a lack of knowledge relating to how a function or effect works (when the unit is operating as designed), are not covered by the manufacture's warranty. Please study this manual carefully before requesting service.

NAME PLATE LOCATION: The graphic indicates the location of the Name Plate on your Yamaha Electronic Products. The Model, Serial Number, Power requirements, etc., are indicated on this plate.

You should note the model serial number and the date of purchase in the spaces provided below and retain this manual as a permanent record of your purchase.



Model _____
Serial No. _____
Purchase Date _____

STATIC ELECTRICITY CAUTION: Some Yamaha Electronic Products have modules that plug into the unit to perform various functions. The contents of a plug-in module can be altered/damaged by static electricity discharges. Static electricity build-ups are more likely to occur during cold winter months (or in areas with very dry climates) when the natural humidity is low. To avoid possible damage to the plug-in module, touch any metal object (a metal desk lamp, a door knob, etc.) before handling the module, if static electricity is a problem in your area, you may want to have your carpet treated with a substance that reduces static electricity buildup. See your local carpet retailer for professional advice that relates to your specific situation.

Music Disk Recorder — Disk Compatibility and Precautions

Disk Compatibility

- Either double-sided double-density (2DD) or double-sided high-density (2HD) 3.5-inch microfloppy disks can be used with the M.D.R.

Precautions on Microfloppy Disk Use

- Never open the disk's shutter. Dirt or dust on the internal magnetic surface will cause data errors.
- Never leave disks near a speaker, TV or other device that emits a strong magnetic field.
- Do not store disks in places exposed to direct sunlight or sources of high temperature.
- Do not place heavy objects, such as books or notebooks, on top of the disks.
- Avoid getting the disks wet.
- Make sure to store the disks in environmental conditions as specified below:
 - ▶ Storage temperature: 4° to 53°C (39° to 127°F)
 - ▶ Storage humidity: 8 to 90% relative humidity
 - ▶ Location where disks are unlikely to be exposed to dust, sand, smoke, etc.
- Be sure to apply the label at the proper position. When changing the label, never cover the old label with a new label; always remove the old label first.

IMPORTANT

THE WIRES IN MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

Blue: NEUTRAL
Brown: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows: The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Making sure that neither core is connected to the earth terminal of the three pin plug

Specifications

| | | EL-60 | EL-40 |
|--------------------------------|--|---|---|
| KEYBOARD | Keyboards Touch Tone | Upper: 49 keys (C ₂ ~C ₆), Lower: 49 keys (C ₁ ~C ₅), Pedal: 20 keys (C ₀ ~G ₁) Initial, After (Upper, Lead, Lower; preset on each voice) | |
| VOICE | Tone Generation | New AWM & FM | |
| | Upper/Lower Keyboard | Strings 1, 2, Pizz. Strings; Organ, Jazz Organ, Pop Organ, Accordion; Brass, Synth.Brass; Piano, Elec.Piano, Harpsichord; Clarinet; Guitar 1, 2, Elec.Guitar, Harp; Saxophone; Vibraphone, Glockenspiel, Marimba, Synth. Chime; Chorus; Cosmic 1, 2, 3, 4; Tutti 1, 2; [Upper] Harmonica; [Lower] Horn 1, 2; User 1-4; (28 Buttons/32 Voices) Volume Fine | Strings 1, 2, Pizz. Strings; Organ, Jazz Organ, Pop Organ, Accordion; Brass, Synth.Brass; Piano, Elec.Piano, Harpsichord; Clarinet; Guitar 1, 2, Elec.Guitar, Harp; Saxophone; Vibraphone, Glockenspiel, Marimba; Chorus; Cosmic 1, 2, 3, 4; Tutti; [Upper] Harmonica; [Lower] Horn; User 1-4; (28 Buttons/29 Voices) Volume Fine |
| | Lead (Upper) | Violin; Oboe, Bassoon; Flute, Whistle; Trumpet 1, 2, Trombone; User 1-4; To Lower; (6 Buttons/8 Voices) Volume Fine | Violin; Oboe, Bassoon; Flute, Whistle; Trumpet, Trombone; User 1-4; To Lower; (6 Buttons/7 Voices) Volume Fine |
| | Pedalboard | ContraBass, Pizz.Bass; Organ Bass 1, 2; Elec.Bass 1, 2, Synth.Bass; Tuba, Timpani; User 1-4; To Lower; (6 Buttons/9 Voices) Volume Fine | |
| | Voice Display | Upper, Lower, Lead, Pedal | |
| | Upper Flute Voice Lower Flute Voice | Flute Voices (16', 8', 5 1/3', 4', 2 2/3', 2', 1 3/5', 1'); Attack (4', 2 2/3', 2'; Length); Click; Response; Tremolo On/Off; Volume; 8 Presets; On/Off Control: Upper, Lower | |
| MELODY ON CHORD/ SOLOSTYLE | | Mode: Off, MOC 1, 2, 3, SoloStyle; Knee: On/Off | |
| EFFECT/ CONDITION | Digital Reverb | Depth | |
| | Sustain | Upper (Knee), Lower (Knee), Pedal: Length | |
| | Tone | Upper, Lead, Lower, Pedal | |
| | Tremolo/Chorus | Upper, Lead, Lower, Pedal, Flute Voice; Tremolo (Fast)/Chorus | |
| | Symphonic/Celeste | Symphonic/Celeste (Upper, Lead, Lower, Pedal) | Celeste (Upper, Lead, Lower, Pedal) |
| | Vibrato | Upper/Lower: Preset/User (Depth); Lead: Preset/User (Delay, Depth, Speed), Touch Vibrato | |
| | Delay/Flanger | Upper, Lead, Lower; Delay: Speed, Feedback, Balance; Flanger: Speed, Feedback, Depth | — |
| | Feet | Upper, Lead, Lower, Pedal: Preset/4'/8'/16' | |
| | Glide | Upper, Lower, Lead | |
| RHYTHM | Rhythms | March 1, 2, 3, Polka 1, 2, Country 1, 2, Broadway, Baroque; Waltz 1, 2, 3, 4, 5, Jazz Waltz 1, 2, 3, Bolero; Swing 1, 2, 3, 4, 5, 6, Jazz Ballad, Dixieland 1, 2; Bounce 1, 2, 3, Reggae 1, 2; Slow Rock 1, 2, 3; 8 Beat 1, 2, 3, 4, 5, Dance Pop 1, 2, 3, 4; Tango 1, 2, 3; Mambo, Salsa, Cha-cha, Rhumba, Beguine; Samba 1, 2, 3, Bossanova 1, 2, 3; 16 Beat 1, 2, 3, 4, 5, Funk 1, 2, 3; User 1-8 (A-D); (12 Buttons; 66 Rhythms); Volume Fine | March 1, 2, 3, Polka 1, 2, Country 1, 2, Broadway, Baroque; Waltz 1, 2, 3, 4, 5, Jazz Waltz 1, 2, 3, Bolero; Swing 1, 2, 3, 4, 5, 6, Jazz Ballad, Dixieland 1, 2; Bounce 1, 2, 3, Reggae 1, 2; Slow Rock 1, 2, 3; 8 Beat 1, 2, 3, 4, 5, Dance Pop 1, 2, 3, 4; Tango 1, 2, 3; Mambo, Salsa, Cha-cha, Rhumba, Beguine; Samba 1, 2, 3, Bossanova 1, 2, 3; 16 Beat 1, 2, 3, 4, 5, Funk 1, 2, 3; (16 Buttons; 66 Rhythms); Volume Fine |
| | Variations | Fill-In; Intro. Ending; Lead In; Auto Variation: On/Off | |
| | Others | Start; Synchro Start; Tempo; Bar/Beat LED; Volume | |
| RHYTHM PROGRAM | Pattern Program | On/Off; Step Write/Real Time Write; Beat (1/4, 3/4, 2/4); Quantize (1, 2, 3, 4, 8, 16, Off); Metronome (On/Off); Edit: Instruments 1-16 (Change, Clear; Cursor); Accent Level 0-8; 75 Percussion Sounds; Accompaniment Select; Save: User 1-8 (A-D, Fill-In); Remaining Memory Display | — |
| | Rhythm Sequence | On/Off; Sequence 1-4; 120 Positions (Bar); Cursor Controls; Data: Preset/User (Set, Insert, Delete, Clear) | — |
| KEYBOARD PERCUSSION | | On/Off: Lower, Pedal; 43 Sounds | |
| ACCOMPANIMENT | Auto Bass Chord | Mode: Off; Single Finger; Fingered Chord; Custom ABC; Memory: Lower/Pedal | |
| | Accompaniments | Type 1, 2, 3, 4 | |
| REGISTRATION MEMORY | | M/To Disk, 1~8; Disable Button; Mode: Off, Shift, User (18 Positions; Cursor Controls; Data: Set, Insert, Delete, Clear) | M/To Disk, 1~8; Disable Button; Mode: Off, Shift |
| BASIC REGISTRATION | | 1~5 | |
| REGISTRATION MENU/ORGAN SELECT | | 80 (Provided in the Included Disk) | Registration Menu: 46; Organ Select: 15 |
| MUSIC DISK RECORDER | | Play/Record: Upper, Lower, Pedal, Lead, Keyboard Percussion, Control; Pause; Stop; Song Select; Song Repeat; Song Delete; Song Copy: From/To; Tempo; Shift; Format; Custom Play; Remaining Memory; LED Display; Eject | — |
| FOOT SWITCH | | [Left] Mode: Off; Rhythm (Stop, Ending, Fill-In); Glide (Upper, Lower, Lead); [Right] Regist. Shift Mode: Off, Shift, User | [Left] Mode: Off; Rhythm (Stop, Ending, Fill-In); Glide (Upper, Lower, Lead); [Right] Regist. Shift Mode: Off, Shift |
| KNEE LEVER | | On/Off: Sustain (Upper, Lower); MOC/SoloStyle | |
| LCD DISPLAY | | 20×2 characters | |
| OTHER CONTROLS | | Power On/Off; Exp. Pedal; Pitch Control; Transpose; Master Volume; Display Select; Data Controls; Page; MIDI (Output: Upper, Lower; Int./Ext.: Lead, Sync, Exp.) | |
| OTHER FITTINGS | | Registration Menu Disk; 3.5" Floppy Disk; Matching Bench; Keyboard Cover/Music Stand; MIDI In/Out; Headphone Jack; Rhythm In (Phone; R/L); Aux In/Out (RCA; R/L) | Matching Bench; Keyboard Cover/Music Stand; MIDI In/Out; Headphone Jack; Rhythm In (Phone; R/L); Aux In/Out (RCA; R/L) |
| OPTIONAL ACCESSORIES | | Voice Disks, Registration Menu Disk, 3.5" Floppy Disks, YHE-5 Headphones | MDR-10 Music Disk Recorder, YHE-5 Headphone |
| SOUND SYSTEM | Power Amplifiers | 110W (55W×2) | |
| | Speakers | 20cm (7 7/8")×2; 5cm (2")×2; Monitor×2 | |
| DIMENSIONS Width×Depth×Height | | 109cm (42 7/8")×52cm (20 1/2")×99cm (39") *With Keyboard Cover Closed | |
| WEIGHT | | 79kg (173 lbs., 13 oz.) | 78kg (171 lbs., 10 oz.) |
| FINISH | | Simulated Mahogany Grain | |

Specifications and descriptions in this User's Guide are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

A

BCD**E****E**

G

H1

K

LM

D

P

QR

S

T

UVW112

SoloStyle Voice Assignments

| Rhythm Style | Mode | Lead Voice | Additional Voices |
|----------------|----------|------------|------------------------------|
| 1. MARCH 1 | Harmony | Clarinet | Saxophone, Flutes |
| 2. MARCH 2 | Harmony | Accordion | Clarinets, Trombone |
| 3. MARCH 3 | Harmony | Horn | Horn, Trombone, Tuba |
| 4. POLKA 1 | Harmony | Accordion | Clarinet, Accordions |
| 5. POLKA 2 | Sequence | Trumpet | Clarinets |
| 6. COUNTRY 1 | Harmony | Piano | Pianos |
| 7. COUNTRY 2 | Delay | Violin | Violins |
| 8. BROADWAY | Harmony | Strings | Strings, Marimba |
| 9. BAROQUE | Sequence | Oboe | Harp |
| 10. WALTZ 1 | Delay | Flute | Flutes |
| 11. WALTZ 2 | Harmony | Strings | Strings |
| 12. WALTZ 3 | Harmony | Horn | Horns |
| 13. WALTZ 4 | Delay | Trumpet | Trumpet, Clarinets |
| 14. WALTZ 5 | Harmony | Flute | Flute |
| 15. J. WALTZ 1 | Delay | Trombone | Trombone, Flutes |
| 16. J. WALTZ 2 | Harmony | Piano | Pianos |
| 17. J. WALTZ 3 | Delay | Guitar | Guitars |
| 18. BOLERO | Delay | Trumpet | Trumpets |
| 19. SWING 1 | Harmony | Brass | Trumpets, Trombone |
| 20. SWING 2 | Sequence | Saxophone | Saxophones |
| 21. SWING 3 | Harmony | Vibraphone | Saxophones, Trumpet |
| 22. SWING 4 | Harmony | Trumpet | Saxophone |
| 23. SWING 5 | Harmony | Flute | Trumpet, Clarinet, Saxophone |
| 24. SWING 6 | Harmony | Trombone | Pianos, Saxophone |
| 25. DIXIE 1 | Harmony | Piano | Pianos |
| 26. DIXIE 2 | Delay | Clarinet | Trumpets, Clarinet |
| 27. J. BALLAD | Sequence | Saxophone | Glockenspiels |
| 28. BOUNCE 1 | Delay | Whistle | Clarinet, Whistles |
| 29. BOUNCE 2 | Harmony | Vibraphone | Guitars, Vibraphone |
| 30. BOUNCE 3 | Harmony | Tutti | Tutti, E. Guitars |
| 31. REGGAE 1 | Harmony | Trombone | Saxophone, Trumpet |
| 32. REGGAE 2 | Harmony | Jazz Organ | Jazz Organ |
| 33. S. ROCK 1 | Harmony | Flute | Oboe, Clarinet, Bassoon |

| Rhythm Style | Mode | Lead Voice | Additional Voices |
|---------------|----------|------------|-------------------------------|
| 34. S. ROCK 2 | Harmony | Strings | Strings |
| 35. S. ROCK 3 | Harmony | Jazz Organ | Jazz Organs |
| 36. 8 BEAT 1 | Sequence | Flute | Cosmic |
| 37. 8 BEAT 2 | Harmony | E. Piano | Horn, E. Pianos |
| 38. 8 BEAT 3 | Delay | Trumpet | E. Guitar, Trumpet, Saxophone |
| 39. 8 BEAT 4 | Harmony | Cosmic | Cosmic, Tutti |
| 40. 8 BEAT 5 | Harmony | Oboe | Flute, Clarinet, Bassoon |
| 41. D. POP 1 | Sequence | Jazz Organ | Jazz Organs |
| 42. D. POP 2 | Sequence | Brass | Brasses |
| 43. D. POP 3 | Delay | Tutti | Tutti, Syn. Chime |
| 44. D. POP 4 | Harmony | Tutti | Tutti, Timpani |
| 45. TANGO 1 | Harmony | Accordion | Accordions |
| 46. TANGO 2 | Harmony | Violin | Violin |
| 47. TANGO 3 | Harmony | Piano | Piano |
| 48. MAMBO | Sequence | Trumpet | Trumpets, Trombone |
| 49. SALSA | Delay | Trombone | Trumpets, Trombone |
| 50. CHACHA | Harmony | Flute | Flute, Pianos |
| 51. RHUMBA | Sequence | Marimba | Marimbas |
| 52. BEGUINE | Harmony | Piano | Pianos |
| 53. SAMBA 1 | Delay | Trombone | Flutes, Trombone |
| 54. SAMBA 2 | Delay | Flute | Flutes |
| 55. SAMBA 3 | Harmony | Guitar | Flutes |
| 56. BOSSA 1 | Delay | Flute | Guitars |
| 57. BOSSA 2 | Harmony | Flute | Strings |
| 58. BOSSA 3 | Harmony | Saxophone | Saxophones |
| 59. 16 BEAT 1 | Delay | E. Piano | Cosmic, E. Pianos |
| 60. 16 BEAT 2 | Delay | Trumpet | Trumpet, Saxophone, Trombone |
| 61. 16 BEAT 3 | Delay | E. Piano | Cosmic |
| 62. 16 BEAT 4 | Delay | Tutti | Tutti, Cosmic |
| 63. 16 BEAT 5 | Harmony | Whistle | Guitar |
| 64. FUNK 1 | Delay | Tutti | Tutti |
| 65. FUNK 2 | Harmony | Tutti | Syn. Brasses, Strings |
| 66. FUNK 3 | Delay | E. Guitar | E. Guitar, Pianos |

MIDI Implementation Chart

Date June 11, '91
Version: 1.0

| Function | | Transmitted | Recognized | Remarks |
|------------------|--|--|---|---|
| Basic Channel | Default | 1 2 3 | 1 2 3 | UK LK PK |
| | Changes | 16 4 5 | 15 16 4 | Keyboard Percussion CONTROL UK LK LEAD |
| Mode | Default Messages Altered | Mode 3 × ***** | Mode 3 × × | |
| Note Number | | 48-96 36-84 36-55 × × ***** | 36-96 36-96 36-96 36-96 36-127 36-96 | UK LK PK LEAD Keyboard Percussion UK, LK, PK |
| | True Voice | | | |
| Velocity | Note ON Note OFF | ○ 9nH, v = 1-127* ○ 9nH, v = 0 | ○ 9nH, v = 1-127 ○ 9nH, v = 0, 8nH | |
| After Touch | Key's Ch's | × ○ | × ○ | |
| Pitch Bender | | × | × | |
| Control Change | 1 4 11 64 | × × ○ × | × × ○*** × | Modulation wheel 2nd Expression pedal Expression pedal Sustain |
| Program Change | Range | 0-7 112-116 ***** | 0-7 112-116 0-7 | |
| System Exclusive | | ○ ** | ○ ** | |
| System Common | Song Pos Song Sel Tune | × × × | × × × | |
| System Real Time | Clock Commands | ○ ○ | ○ *** ○ | (FAH, FCH) |
| Aux Messages | Local ON/OFF All Notes OFF Active Sense Reset | × × ○ × | × × ○ × | |
| Notes | * The velocity is fixed at 64 when PK is ON. ** Refer to MIDI Specifications *** Recognize only when External mode | | | |

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO

○: YES
×: NO

MIDI Specifications

■ CHANNEL MESSAGES

Date June 11, '91
Version: 1.0

| Code | Function | Transmitted | Recognized | Remarks |
|--|---|-------------|------------|---------------------|
| 8nH, nnH (Note No.), 00H-7FH | Note OFF | × | CH 1 | UK |
| | | × | CH 2 | LK |
| | | × | CH 3 | PK |
| | | × | (CH 4)* | LEAD |
| | | × | CH 15 | Keyboard Percussion |
| 9nH, nnH (Note No.), 01H-7FH (ON) 00H (OFF) | Note On/OFF | CH 1 | CH 1 | UK |
| | | CH 2 | CH 2 | LK |
| | | CH 3** | CH 3 | PK |
| | | (CH 4)* | (CH 4)* | LEAD |
| | | (CH 5)* | × | |
| | | × | CH 15 | Keyboard Percussion |
| BnH, 04H, 00H-7FH | 2nd Expression Pedal | (CH 4)* | (CH 4)* | LEAD |
| | | CH 16 | CH 16 | CONTROL |
| BFH, 0BH, 00H-7FH | Expression Pedal | CH 16 | CH 16 | CONTROL |
| BnH, 40H, 7FH (ON) 00H (OFF) | Sustain ON/OFF | × | × | UK |
| | | × | × | LK |
| | | × | × | PK |
| BnH, 7BH, 00H | All Note OFF | × | × | UK |
| | | × | × | LK |
| | | × | × | PK |
| | | × | × | LEAD |
| | | × | × | CONTROL |
| CnH, nnH (Regist. No.) | Program Change (Registration Memory) | × | CH 1 | UK |
| | | × | CH 2 | LK |
| | | × | CH 3 | PK |
| | | CH 16 | CH 16 | CONTROL |
| DnH, 00H-7FH | After Touch | CH 1 | CH 1 | UK |
| | | CH 2 | CH 2 | LK |
| | | CH 3 | CH 3 | PK |
| | | (CH 4)* | (CH 4)* | LEAD |

* Can be replaced by MIDI CONTROL function.
** The velocity is fixed at 64 when ON.

■ SYSTEM REALTIME MESSAGES

| Code | Function | Transmitted | Recognized | Remarks |
|------|----------------|-------------|------------|-------------------------|
| F8H | Clock | ○ | ○* | * Recognize = Ext. mode |
| FAH | Start | ○ | ○ | |
| FCH | Stop | ○ | ○ | |
| FEH | Active Sensing | ○ | ○ | |
| FFH | Reset | × | × | |

1. Electone common messages

■ BULK DUMP Related Messages

| Code | Messages | Transmitted | Recognized |
|---|---|-------------|------------|
| F0H, 43H, 70H, 70H, 00H, (data), F7H 01H 02H | Bulk Dump data | × | ○ |
| | Request-to-Send Voice Parameter data | × | ○ |
| | Request-to-Receive Voice Parameter data | × | ○ |
| F0H, 43H, 70H, 70H, 10H, F7H 11H 12H 14H 15H 16H | Request-to-Send all RAM data | × | ○ |
| | Request-to-Send Registration data | × | ○ |
| | Request-to-Send R.S.P. data | × | ○*1 |
| | Request-to-Send User pattern data | × | ○*1 |
| | Request-to-Send User pattern data | × | ○*1 |
| | Request-to-Send USER Voice data | × | ○ |
| | | | |
| F0H, 43H, 70H, 70H, 20H, F7H 21H 22H 24H 25H 26H | Request-to-Receive all RAM data | × | ○ |
| | Request-to-Receive Registration data | × | ○ |
| | Request-to-Receive R.S.P. data | × | ○*1 |
| | Request-to-Receive User Pattern data | × | ○*1 |
| | Request-to-Receive User Pattern data | × | ○*1 |
| | Request-to-Receive USER Voice data | × | ○ |
| | | | |
| F0H, 43H, 70H, 70H, 30H, F7H | Request-to-Send Model ID data | × | ○ |
| F0H, 43H, 70H, 70H, 38H, 7FH, F7H 00H | Bulk Dump Acknowledge | ○ | × |
| | Unacknowledge | ○ | × |

* 1 Can be received on the EL-60 only.

■ CONTROL CHANGE

| Code | Messages | Transmitted | Recognized |
|---|---------------------|-------------|------------|
| F0H, 43H, 70H, 70H, 40H, 45H, 7FH, F7H 00H | FOOT SWITCH LEFT ON | ○ | ○ |
| | OFF | ○ | ○ |
| 40H, 47H, 7FH, F7H 00H | KNEE LEVER ON | ○ | ○ |
| | OFF | ○ | ○ |
| 40H, 48H, 7FH, F7H 00H | FILL IN ON | ○ | ○ |
| | OFF | ○ | ○ |
| 40H, 48H, 7FH, F7H 00H | INTRO./ENDING ON | ○ | ○ |
| | OFF | ○ | ○ |
| 40H, 50H, TLH, THH, F7H | TEMPO | ○ | ○ |

■ MDR STATUS

| Code | Messages | Transmitted | Recognized |
|--|----------------------|-------------|------------|
| F0H, 43H, 70H, 70H, 70H, 01H, 7FH 02H | PLAY Start | × | ○ |
| | Stop | × | ○ |
| 03H 04H | RECORD Start | × | ○ |
| | Stop | × | ○ |
| 05H 06H | FF ►► Start | × | ○ |
| | Stop | × | ○ |
| | Rhythm Pointer Reset | × | ○ |

■ OTHERS

| Code | Messages | Transmitted | Recognized |
|-----------------------------------|------------|-------------|------------|
| F0H, 43H, 70H, 78H, SCH, NCH, F7H | Bar signal | ○ | ○ |

2. EL-60/40 common messages

| Code | Messages | Transmitted | Recognized |
|--|---|-------------|------------|
| F0H, 43H, 70H, 78H, 00H, (data), F7H | Bulk Dump data | ○ | ○ |
| 01H | Request-to-Send Voice Parameter data | × | ○ |
| 02H | Request-to-Receive Voice Parameter data | × | ○ |
| F0H, 43H, 70H, 78H, 10H, F7H | Request-to-Send all RAM data | × | ○ |
| 11H | Request-to-Send Registration data | × | ○ |
| 12H | Request-to-Send R.S.P. data | × | ○ *2 |
| 14H | Request-to-Send User pattern data | × | ○ *2 |
| 15H | Request-to-Send User pattern data | × | ○ *2 |
| 16H | Request-to-Send USER Voice data | × | ○ |
| F0H, 43H, 70H, 78H, 20H, F7H | Request-to-Receive all RAM data | × | ○ |
| 21H | Request-to-Receive Registration data | × | ○ |
| 22H | Request-to-Receive R.S.P. data | × | ○ *2 |
| 24H | Request-to-Receive User Pattern data | × | ○ *2 |
| 25H | Request-to-Receive User Pattern data | × | ○ *2 |
| 26H | Request-to-Receive USER Voice data | × | ○ |
| F0H, 43H, 70H, 78H, 41H, (data), F7H | Panel Switch Event data *1 | ○ | ○ |
| F0H, 43H, 70H, 78H, 42H, (data), F7H | Current Registration data | ○ | ○ |

*1 Refer to the "Table of Switch-Related MIDI Codes."
*2 Can be received on the EL-60 only.

●Table of SW MIDI codes [F0H, 43H, 70H, 78H, 41H, CODE, DATA, F7H]

Switch Code

| Functions/Switches | | Code | Data | Remarks |
|---------------------|------------|------|---------|----------------------------|
| Selector | UK Voice 1 | 02H | 00H-0DH | SW no. |
| | LK Voice 1 | 03H | 00H-0DH | SW no. |
| | Lead | 06H | 00H-04H | SW no. |
| | PK Bass 1 | 07H | 00H-04H | SW no. |
| | Rhythm | 0BH | 00H-0BH | SW no. |
| Volume | UK Voice 1 | 12H | 00H-7FH | Volume data |
| | LK Voice 1 | 13H | 00H-7FH | Volume data |
| | Lead | 16H | 00H-7FH | Volume data |
| | PK Bass 1 | 17H | 00H-7FH | Volume data |
| | Rhythm | 1AH | 00H-7FH | Volume data |
| | Reverb | 1BH | 00H-7FH | Volume data |
| Flute Voice | Upper | 30H | 00H-01H | 00H = Off 01H = On |
| | Lower | 31H | 00H-01H | 00H = Off 01H = On |
| To Lower | Lead | 36H | 00H-01H | 00H = Off 01H = On |
| | PK Bass 1 | 37H | 00H-01H | 00H = Off 01H = On |
| Sustain | UK Sustain | 50H | 00H-01H | 00H = Off 01H = On |
| | LK Sustain | 51H | 00H-01H | 00H = Off 01H = On |
| | PK Sustain | 52H | 00H-01H | 00H = Off 01H = On |
| Keyboard Percussion | LK | 5BH | 00H-01H | 00H = Off 01H = On |
| | PK | 5CH | 00H-01H | 00H = Off 01H = On |
| Disable | Disable | 5FH | 00H-01H | 00H = Off 01H = On |
| Tremolo | Tremolo | 60H | 00H-01H | 00H = Chorus 01H = Tremolo |
| R.S.P. * | 1 | 61H | 00H-01H | 00H = Off 01H = On |
| | 2 | 62H | 00H-01H | 00H = Off 01H = On |
| | 3 | 63H | 00H-01H | 00H = Off 01H = On |
| | 4 | 64H | 00H-01H | 00H = Off 01H = On |

* EL-60 only.

3. Model-Specific messages

| Code | Messages | Transmitted | Recognized |
|---|---|-------------|------------|
| F0H, 43H, 70H, nnH, 00H, (data), F7H nnH, 00H nnH, 01H, nnH, 02H | Bulk Dump data | × | ○ |
| | Model ID data | ○ | × |
| | Request-to-Send Voice Parameter data | × | ○ |
| | Request-to-Receive Voice Parameter data | × | ○ |
| F0H, 43H, 70H, nnH, 10H, F7H 11H 12H 14H 15H 16H | Request-to-Send all RAM data | × | ○ |
| | Request-to-Send Registration data | × | ○ |
| | Request-to-Send R.S.P. data | × | ○* |
| | Request-to-Send USER Pattern data | × | ○* |
| | Request-to-Send USER Pattern data | × | ○* |
| | Request-to-Send USER Voice data | × | ○ |
| F0H, 43H, 70H, nnH, 20H, F7H 21H 22H 24H 25H 26H | Request-to-Receive all RAM data | × | ○ |
| | Request-to-Receive Registration data | × | ○ |
| | Request-to-Receive R.S.P. data | × | ○* |
| | Request-to-Receive USER Pattern data | × | ○* |
| | Request-to-Receive USER Pattern data | × | ○* |
| | Request-to-Receive USER Voice data | × | ○ |

"nnH" can be sent/received by \$3B (EL-40) or \$3E (EL-60).

* Can be received on the EL-60 only.

4. Electone/Single Keyboard common messages

| Code | Messages | Transmitted | Recognized |
|-------------------------------------|---------------------------------------|-------------|------------|
| F0H, 43H, 73H, 01H, 02H, F7H 03H | Request for Internal Synchronous mode | × | ○ |
| | Request for External Synchronous mode | × | ○ |

YAMAHA
YAMAHA CORPORATION

YAMAHA MOTOR CO., LTD.